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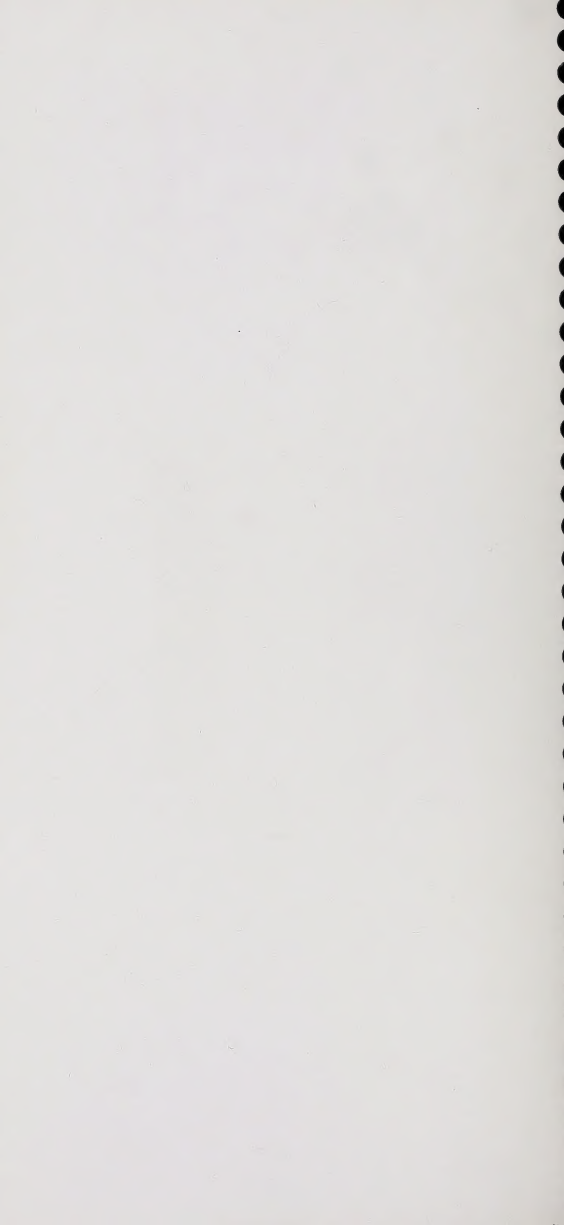
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WEED SEEDLING GUIDE



**EARLY IDENTIFICATION OF GRASS
AND BROAD-LEAVED WEEDS**

Alberta
AGRICULTURE, FOOD AND
RURAL DEVELOPMENT



WEED SEEDLING GUIDE



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Broad-leaved Weeds

The broad-leaved weed seedlings in this guide are arranged according to cotyledon shape. To narrow your choices, compare the cotyledon shape of the weed you are identifying with the basic cotyledon shapes found in the key on pages 2 and 3.

Turn to the appropriate pages in the guide and use the cotyledon illustrations and the photographs to correctly identify the weed.

The comments provided with the weeds will help you to distinguish amongst weeds that are similar looking at the seedling stage.

Grasses

Grasses are grouped together beginning on page 47. The collar area between the blade and sheath can be used to separate grasses. These parts of a grass plant are illustrated on page 47 and are the key to distinguishing one grass from another.

SEEDLINGS WITH COTYLEDONS

Linear – a long leaf with parallel sides, tapering at both ends



- Leafy spurge 6
- Wild tomato 7
- Lamb's-quarters 8
- Russian pigweed 9

Lanceolate – lance-shaped cotyledon, much longer than broad, with the widest part at the base



- Redroot pigweed 10
- Prostrate pigweed 11

Oval – widest part of the cotyledon at the centre



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Ovate – egg-shaped with the widest part at the base of the cotyledon



- White cockle 23
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Oblanceolate – lance-shaped with the widest part at the end of the cotyledon



- Wild buckwheat 25

Spatulate – *spade or heart-shaped cotyledon*



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Kidney-shaped – *broad leaf deeply indented at the top of the cotyledon*



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Obovate – *egg-shaped in outline, with the widest part at the top of the cotyledon*



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Needle-like – *very narrow cotyledon*



- Russian thistle 36
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No cotyledon

- Field horsetail 38

Oblong – *paddle-shaped, rounded at the tip, sides nearly parallel*



- Common groundsel 39
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Others

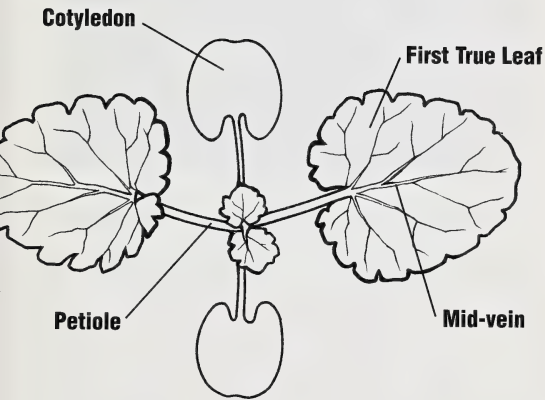
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Grasses



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SEEDLINGS WITH COTYLEDONS

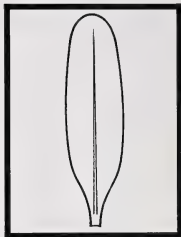


LEAFY SPURGE



Leafy Spurge

Euphorbia esula L.



Life cycle: Creeping perennial

Cotyledon: Linear, hairless, with distinct veins

Leaves: Elliptic, arranged in spirals (alternate) around stems, hairless, stalkless

Roots: Deep, horizontal and vertical, creeping roots. New shoots are produced from buds on roots.

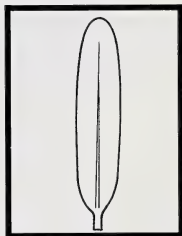
Comments: The milky juice of leafy spurge can cause skin irritation. This plant is poisonous to most livestock.

WILD TOMATO



Wild Tomato

Solanum triflorum Nutt.



Life cycle: Annual

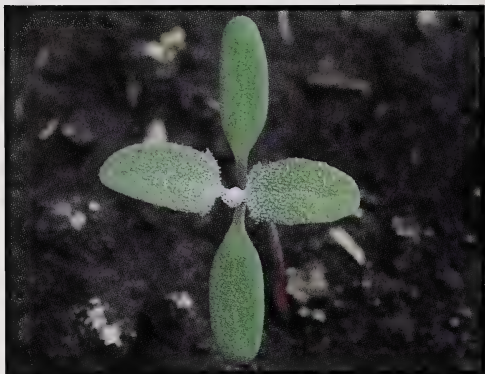
Cotyledon: Linear, hairless or slightly hairy, smooth edges

Leaves: Alternate, oblong to ovate, slightly hairy, deeply lobed, petioled

Roots: Taproot, slender, with many fibrous side-roots

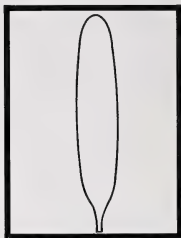
Comments: It may be confused with common groundsel at seedling stage.

LAMB'S-QUARTERS



Lamb's-quarters

Chenopodium album L.



Life cycle: Annual

Cotyledon: Linear to oblong, hairless, with pinkish coloring on undersides

Leaves: Opposite, later alternate, ovate, with irregularly fine-toothed edges. Leaves coated with white, mealy particles. True leaves appear greyish-green (especially conspicuous on undersides).

Roots: Taproot, short and branched

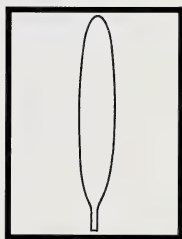
Comments: This weed may be confused with redroot pigweed. It may be distinguished by mealiness on leaves of lamb's-quarters while redroot pigweed has a notched tip.

RUSSIAN PIGWEED



Russian Pigweed

Axyris amaranthoides L.



Life cycle: Annual

Cotyledon: Linear, smooth to slightly hairy

Leaves: Alternate, dull green, oval to elliptic, tapered at both ends with prominent mid-veins

Roots: Taproot

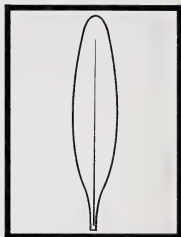
Comments: In early growth, Russian pigweed can look like lamb's-quarters. Russian pigweed can be differentiated by the star-shaped hairs and the lack of mealiness on undersides of leaves.

REDROOT PIGWEED



Redroot Pigweed

Amaranthus retroflexus L.



Life cycle: Annual

Cotyledon: Linear to lanceolate, hairless, often reddish-purple underneath

Leaves: Alternate, oblong, slightly hairy and prominently veined on the undersides. The mid-vein extends as a small bristle in the notched tip on older leaves. Seedling stem dark red at base.

Roots: Taproot, shallow, red or red striped

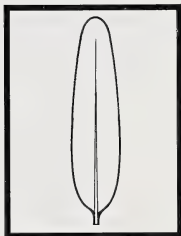
Comments: This weed may be confused with prostrate pigweed and lamb's-quarters.

PROSTRATE PIGWEED



Prostrate Pigweed

Amaranthus graecizans L.



Life cycle: Annual

Cotyledon: Linear to lanceolate, dull green, reddish-purple underneath

Leaves: Alternate, oval, with prominent white veins on the undersides, often notched at tips. Seedlings with red-purple stems.

Roots: Taproot

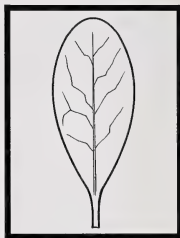
Comments: Seedlings look similar to redroot pigweed except the cotyledons are slightly longer. This weed forms large spreading mats in open areas.

SHOWY MILKWEED



Showy Milkweed

Asclepias speciosa Torr.



Life cycle: Creeping perennial

Cotyledon: Oval to obovate, granular above, shiny beneath

Leaves: Opposite, lanceolate to oblong, with distinctive mid-vein underneath, short hairs on leaf edges.

Roots: Thick, fleshy, creeping roots

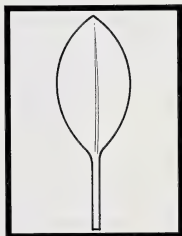
Comments: This weed contains a milky sap. It is the only food for the monarch butterfly.

COMMON CHICKWEED



Common Chickweed

Stellaria media (L.) Cyrill.



Life cycle: Annual or winter annual

Cotyledon: Elliptic to oval, with a constricted tip, hairless

Leaves: Opposite, ovate with pointed tips, the petiole with a distinct row of hairs

Roots: Fibrous, shallow

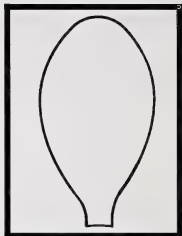
Comments: Originally a weed of lawns, gardens, and nurseries, chickweed is now a widespread weed in all crops. It has spreading stems, which may root at the nodes.

PINEAPPLEWEED



Pineappleweed

Matricaria matricarioides
(Less.) Porter



Life cycle: Annual

Cotyledon: Oval, broadest at the tip, stalkless

Leaves: Finely divided, hairless

Roots: Taproot

Comments: This is a low, spidery weed common to wastelands. At the seedling stage, it can be confused with scentless chamomile; however, this weed smells like a pineapple when crushed, scentless chamomile does not.

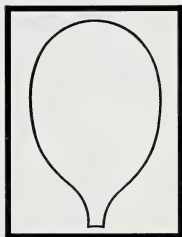
SCENTLESS CHAMOMILE



Scentless Chamomile

Matricaria perforata Mérat

Life cycle: Annual, winter annual, or short-lived perennial



Cotyledon: Oval to oblong, hairless, light green, stalkless

Leaves: Alternate, oval to ovate, finely divided

Roots: Taproot; thick, woody, branched

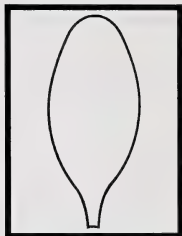
Comments: This weed is frequently called mayweed or scentless mayweed. It is commonly confused with flixweed and pineapple weed. The cotyledons have no stalk and no odor.

NARROW-LEAVED HAWK'S-BEARD



Narrow-leaved Hawk's-beard

Crepis tectorum L.



Life cycle: Annual or winter annual

Cotyledon: Oval, small, hairless

Leaves: Variable, oval to lanceolate, tapering into stalks. Few, distinct downward-pointing teeth on leaf edges. Leaves form a flat-based rosette.

Roots: Taproot

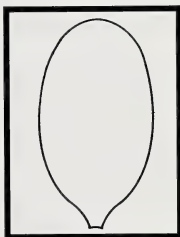
Comments: Abundant in new stands of legumes and grasses. Becoming a common weed under reduced tillage.

CANADA THISTLE



Canada Thistle

Cirsium arvense (L.) Scop.



Life cycle: Creeping perennial

Cotyledon: Oblong to broadly oval

Leaves: Irregularly lobed, with spiny, toothed margins and somewhat hairy underneath

Roots: Deep horizontal creeping roots

Comments: Canada thistle can vary greatly in appearance. Leaves can have few, to many spines and be quite smooth, to very crinkled. The plant can be very woody, in which case it is more difficult to control.

ANNUAL SOWTHISTLE

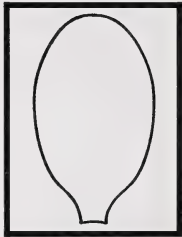


Annual Sowthistle

Sonchus oleraceus L. and
Sonchus asper (L.) Hill

Life cycle: Annual

Cotyledon: Round to oval with slight indentations at the tip, hairless, smooth edges.



Leaves: Oval to ovate, with the base narrowing into the stalk, with or without prickles on leaf edges. Plants with milky sap.

Roots: Taproot, not connected to a horizontal root as in perennial sowthistle.

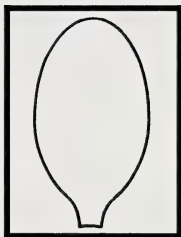
Comments: Both species are commonly called annual sowthistle. It is unknown which species is most common in the prairie provinces. Annual and perennial sowthistle seedlings are almost impossible to distinguish. Later, the larger, deeper root stock and larger flowers of perennial sowthistle are apparent.

PERENNIAL SOWTHISTLE



Perennial Sowthistle

Sonchus arvensis L. and
Sonchus uliginosus Bieb.



Life cycle: Creeping perennial

Cotyledon: Round to oval, with slight indentations at the tips

Leaves: Alternate, elliptic to oval, the base narrower than the tips, with toothed edges and soft prickles

Roots: Deep, horizontal, creeping roots

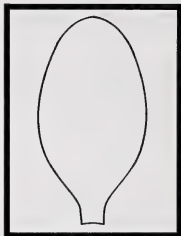
Comments: Seedlings of annual and perennial sowthistle are almost impossible to distinguish. Small perennial sowthistle often are regrowing from root stock, rather than seed. At flowering stage, perennial sowthistle has larger flowers.

SHEPHERD'S-PURSE



Shepherd's-purse

Capsella bursa-pastoris (L.) Medic



Life cycle: Annual or winter annual

Cotyledon: Oval to ovate, minutely granular surface

Leaves: First true leaves oval to elliptic. Rosette leaves may be shallow to deeply lobed. Upper leaf surface hairy.

Roots: Taproot, branched

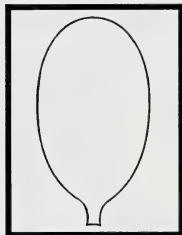
Comments: Shepherd's-purse can be distinguished from stinkweed by hairs on the surface of leaves.

STINKWEED



Stinkweed

Thlaspi arvense L.



Life cycle: Annual or winter annual

Cotyledon: Oblong to oval, hairless

Leaves: Usually in a basal rosette, oval to oblong, up to 3 1/2 inches long, with stalks, smooth or wavy edges. Prominent, shiny veins on undersides. Turnip-like smell when crushed.

Roots: Taproot

Comments: The strong turnip-like smell of stinkweed, when crushed, is a good identification feature. Stinkweed has no hairs on the leaf, which distinguishes it from shepherd's-purse.

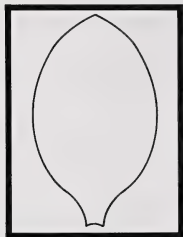
BLUEBUR



Bluebur

Lappula squarrosa (Retz.) Dumont

Life cycle: Annual or winter annual



Cotyledon: Oval to ovate with short hair

Leaves: Oval to elliptic, covered with stiff hairs, with a distinct crease down the centre. This seedling is easily confused with night-flowering catchfly. The crease in the true leaf of bluebur is distinct.

Roots: Taproot

Comments: Bluebur has a characteristic smell similar to a mouse-infested building.

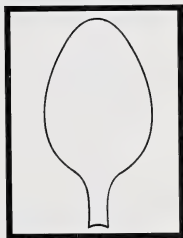
WHITE COCKLE



White Cockle

Silene pratensis (Rafn) Godron & Gren.

Life cycle: Biennial or short-lived perennial



Cotyledon: Ovate, tips often constricted

Leaves: Opposite, elliptic, with hairs on edges

Roots: Taproot

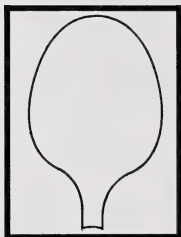
Comments: This seedling is similar to night-flowering catchfly. The cotyledons are slightly narrower at the tip.

NIGHT-FLOWERING CATCHFLY



Night-flowering Catchfly

Silene noctiflora L.



Life cycle: Annual or winter annual

Cotyledon: Oblong to ovate, fringed with hair at the base

Leaves: Opposite, spoon-shaped, widen toward the end and then taper to a point. Hairs on leaf surface and leaf edges.

Roots: Taproot

Comments: Night-flowering catchfly is easily confused with bluebur and white cockle at the seedling stage.

WILD BUCKWHEAT



Wild Buckwheat

Polygonum convolvulus L.

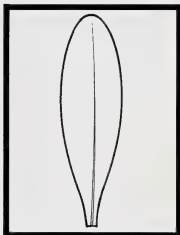
Life cycle: Annual

Cotyledon: Oblanceolate to linear, attached at 120° to each other when viewed from the top

Leaves: Arrowhead to heart-shaped, longer than they are broad, pointed at the tip. Papery sheath (ocrea) surrounds stem at base of leaf stalk; stems, violet red.

Roots: Taproot

Comments: Wild buckwheat is differentiated from field bindweed by the pointed leaf tip, flower color and presence of ocrea around the stems at the base of leaf stalks. Wild buckwheat is differentiated from tartary buckwheat by its cotyledons and twining stems. Tartary buckwheat is erect and does not twine.

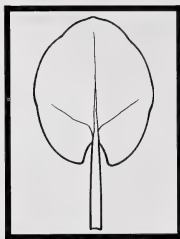


TARTARY BUCKWHEAT



Tartary Buckwheat

Fagopyrum tataricum (L.) Gaertn.



Life cycle: Annual

Cotyledon: Broad, notched at base

Leaves: Triangular, as broad as long, and pointed at the tip. Papery sheath (ocrea) where leaf stalk joins stem.

Roots: Taproot

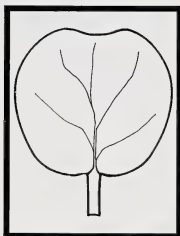
Comments: True leaves look similar to wild buckwheat and field bindweed. Tartary buckwheat is erect while wild buckwheat and field bindweed are twining.

FIELD BINDWEED



Field Bindweed

Convolvulus arvensis L.



Life cycle: Creeping perennial

Cotyledon: Broad (indented at the tip) and prominently veined

Leaves: Arrowhead or spade-shaped, with blunt tips and prominent veins on undersurface

Roots: Deep creeping root system

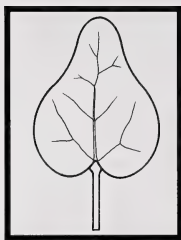
Comments: Cotyledon shape, the blunt leaf tip and absence of a papery sheath at the base of the leaf stalk allows bindweed to be distinguished from wild buckwheat. It is also possible to confuse this weed with tartary buckwheat as the cotyledons are similar.

ROUND-LEAVED MALLOW



Round-leaved Mallow

Malva rotundifolia L.



Life cycle: Annual or biennial

Cotyledon: Heart-shaped, with lobes at base, glossy, with prominent veins.

Leaves: Alternate, round with heart-shaped base, crinkly, cupped, with rounded teeth on edges, petioled

Roots: Taproot, stout

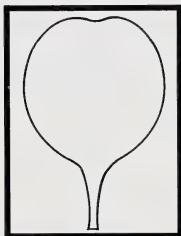
Comments: This seedling may be confused with tartary buckwheat. The cotyledons are the distinguishing feature. Note also that the heart-shaped cotyledons resemble the true leaf of wild buckwheat.

BALL MUSTARD



Ball Mustard

Neslia paniculata (L.) Desv.



Life cycle: Annual or winter annual

Cotyledon: Heart-shaped, slightly indented at tips, hairless.

Leaves: Alternate, broad, elliptic to oblong with pointed or rounded tips and the base tapering into the stalk. Small, star-shaped hairs may be seen on the seedling leaves and stem.

Roots: Taproot, slender

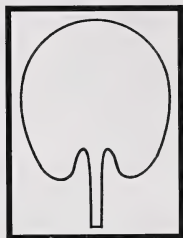
Comments: At maturing, this mustard is easy to distinguish from other mustards because of the ball-like seed pods.

AMERICAN DRAGONHEAD



American Dragonhead

Dracocephalum parviflorum Nutt.



Life cycle: Annual or biennial

Cotyledon: Rounded with rounded lobes at the base

Leaves: Opposite, ovate with scalloped edges, hairiness variable

Roots: Taproot

Comments: Stem is square. The rounded lobes on cotyledons are scalloped, rather than toothed, leaf margins differentiate this weed from hemp-nettle.

The true leaves of this seedling may be confused with round-leaved mallow.

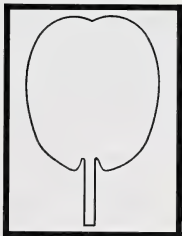
The cotyledon shape can be used to distinguish them.

HEMP-NETTLE



Hemp-nettle

Galeopsis tetrahit L.



Life cycle: Annual

Cotyledon: Round to oblong, with a distinct notch at the tip and pointed basal lobes, hairless

Leaves: Opposite, oval-elliptic, with coarsely toothed edges, and hairy. Prominently veined.

Roots: Taproot

Comments: Stem square. Resembles American dragonhead. Cotyledons lack rounded basal lobes. Hemp-nettle leaves are toothed rather than scalloped, as are American dragonhead.

VOLUNTEER CANOLA



Volunteer Canola

Brassica campestris L.,
Brassica napus L.

Life cycle: Annual

Cotyledon: Kidney-shaped

Leaves: Spoon-shaped, broadest at the tip. Argentine varieties are smooth on the undersides; Polish varieties are wrinkled and hairy underneath. Basal leaves of Polish varieties are yellow-green and grow in rosettes. Argentine varieties have blue-green, waxy basal leaves in larger rosettes.

Roots: Taproot

Comments: Wild mustard can usually be distinguished from both Polish and Argentine canola by its red-purple coloring on the stems at leaf axils, and by its hairy stems.

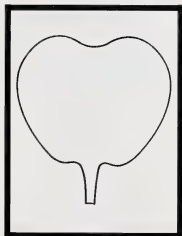


WILD MUSTARD



Wild Mustard

Brassica kaber (DC.)
L.C. Wheeler



Life cycle: Annual

Cotyledon: Broad, kidney-shaped, hairless

Leaves: Alternate, ovate to oblong, hairy especially under veins and on leaf edges.

Roots: Taproot

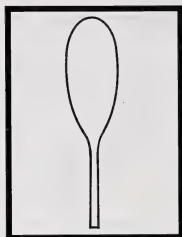
Comments: Can usually be distinguished from volunteer canola by the red-purple coloring at leaf axils, and the hairy stems.

GREEN TANSY MUSTARD



Green Tansy Mustard

Descurainia pinnata (Walt.) Britt.



Life cycle: Annual or winter annual

Cotyledon: Obovate

Leaves: Alternate, finely divided, appearing lace-like. First two true leaves opposite, three to five lobed.

Roots: Taproot

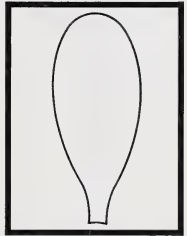
Comments: Green tansy mustard is similar to flixweed and cannot be differentiated at the seedling stage.

YELLOW WHITLOW-GRASS



Yellow Whitlow-grass

Draba nemorosa L.



Life cycle: Annual or winter annual

Cotyledon: Very small, obovate

Leaves: Elliptic to ovate, in a basal rosette. Distinctly hairy.

Roots: Fibrous

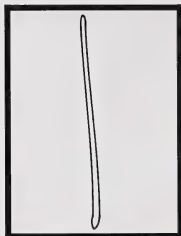
Comments: Yellow whitlow-grass is not a significant problem weed.

RUSSIAN THISTLE



Russian Thistle

Salsola kali L.



Life cycle: Annual

Cotyledon: Narrow, needle-like, hairless, lengthening to reach one to two inches (2.5 to 5 cm).

Leaves: Opposite (later alternate), needle-like, round in cross section, with spine at the tip, as long or longer than cotyledons.

Roots: Taproot

Comments: The spine at the tip of the leaves and the dark green color distinguishes it from corn spurry.

CORN SPURRY



Corn Spurry

Spergula arvensis L.



Life cycle: Annual

Cotyledon: Narrow, linear, needle-like

Leaves: True leaves also needle-like. Leaves arranged in a whorl around the stem. Leaves not obviously hairy, but may be slightly sticky.

Roots: Fibrous, shallow

Comments: Seedling looks similar to Russian thistle, but the leaves have blunt tips rather than the prickle of Russian thistle.

FIELD HORSETAIL



Field Horsetail

Equisetum arvense L.

Life cycle: Creeping perennial

Cotyledon: None. Field horsetail is not a flowering plant, so no seeds, and therefore no seedlings are produced. Reproduction by spores produces unbranched stems with cone-like structures at the tip. The cones contain spores. These stems are seen in early spring. They last for several weeks, then wither, making way for sterile, green, branched stems.

Roots: Horizontal, creeping stems with fibrous adventitious roots.

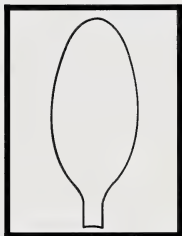
Comments: Field horsetail is poisonous when consumed in large quantities. Horses, especially young ones are most affected. Hay containing horsetail is particularly dangerous.

COMMON GROUNSEL



Common Groundsel

Senecio vulgaris L.



Life cycle: Annual, winter annual, or sometimes a biennial

Cotyledon: Oblong. Stalks and leaves grooved at base.

Leaves: Alternate, oval, with staircase-like, toothed edges. Mid-vein prominent underneath. Forms rosette in early stages.

Roots: Fibrous taproot

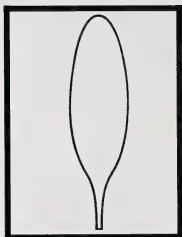
Comments: If cattle eat large quantities of common groundsel, they may be affected with a disease called the "staggers".

KOCHIA



Kochia

Kochia scoparia (L.) Schrad.



Life cycle: Annual

Cotyledon: Elliptic to oblong, with very fine hairs, the undersides bright pink

Leaves: Linear to elliptic, alternate, close together on stems, pale green, covered with fine hairs

Roots: Taproot

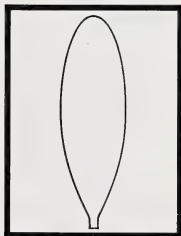
Comments: Kochia grows well in alkaline and even saline soils.

SMARTWEED SPECIES



Smartweed species: Green Smartweed, Pale Smartweed

Polygonum scabrum Moench,
P. lapathifolium L.



Life cycle: Annual

Cotyledon: Oblong

Leaves: Alternate, elliptic to lanceolate, with matted hairs on undersides of first five to seven leaves. Papery sheath (ocrea) around stem where leaves join. Leaves frequently are marked with a smudge.

Roots: Taproot, branched

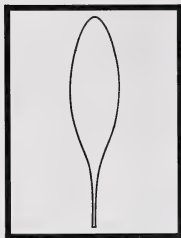
Comments: Green and pale smartweeds are often confused with lady's-thumb which is not common in Alberta. Smartweed looks very similar to wild buckwheat before the true leaves emerge.

FLIXWEED



Flixweed

Descurainia sophia (L.) Webb



Life cycle: Annual, winter annual, or biennial

Cotyledon: Small, oblong; petioled

Leaves: First true leaves are opposite and tri-lobed. Remaining leaves are alternate, finely divided and grey-green, with fine hairs.

Roots: Taproot

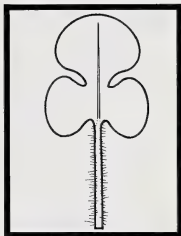
Comments: Flixweed is sometimes called tansy mustard and is impossible to differentiate at the seedling stage. Flixweed seedlings are also confused with scentless chamomile. Flixweed cotyledons have a stalk, unlike those on scentless chamomile, which are stalkless.

STORK'S-BILL



Stork's-bill

Erodium cicutarium (L.) L'Hér



Life cycle: Annual, winter annual, or biennial

Cotyledon: Unique, oblong, three-lobed

Leaves: Finely divided, with toothed segments, densely hairy, forming a rosette.

Roots: Taproot, with many fibrous side-roots

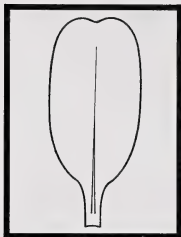
Comments: The unique cotyledons of stork's-bill may be used to distinguish this seedling from flixweed.

CLEAVERS



Cleavers

Galium aparine L.



Life cycle: Annual

Cotyledon: Ovate to oblong, usually only slightly hairy, notched at the tip.

Leaves: Linear to oblanceolate, pointed tip, in whorls at each node. Leaves are slightly hairy. Stems, square with stiff hairs.

Roots: Taproot, slender

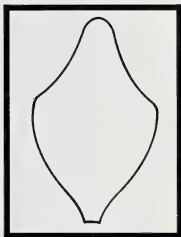
Comments: Cleavers has weak stems which tend to lean on other plants. The seed is very difficult to mechanically separate from canola.

TOADFLAX



Toadflax

Linaria vulgaris Miller



Life cycle: Creeping perennial

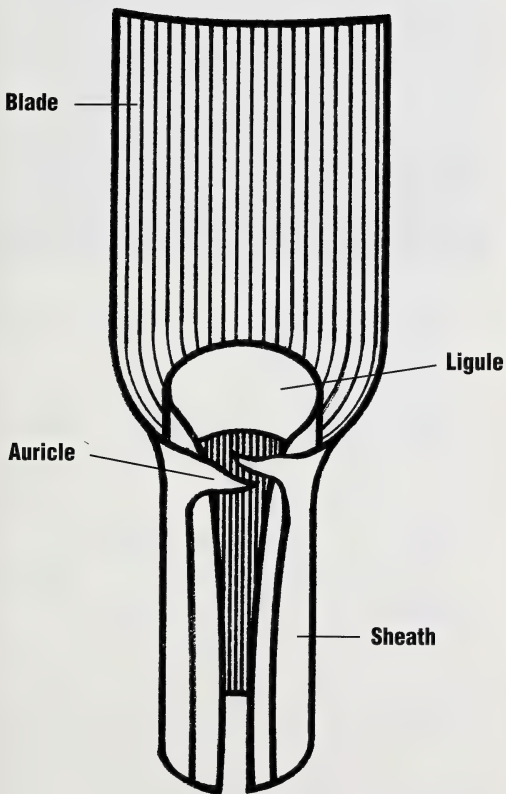
Cotyledon: Ovate to lanceolate, with a distinct bump at the tips

Leaves: First few leaves, ovate, hairless; later leaves linear

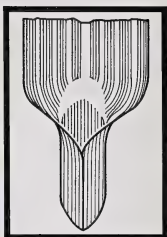
Roots: Deep, horizontal, creeping roots

Comments: The young plants look similar to leafy spurge. They can be distinguished by cotyledon shape and absence of milky sap in toadflax.

GRASS SEEDLINGS



BARNYARD GRASS



Barnyard Grass

Echinochloa crusgalli (L.) Beauv.

Life cycle: Annual

Auricles: Absent

Ligule: Absent

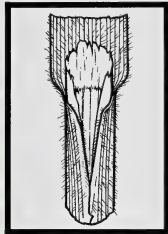
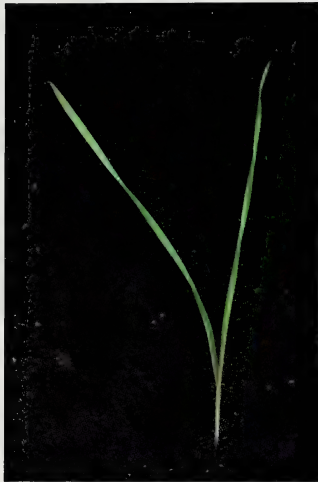
Leaf blade: Leaves hairless, smooth, pointed tips; margins may be crinkled.

Leaf sheath: Hairless, visibly flat at the three-leaf stage, often red at base

Roots: Fibrous

Comments: The only grassy weed in Alberta with no auricles and no ligule.

DOWNY BROME



Downy Brome

Bromus tectorum L.

Life cycle: Annual, winter annual

Auricles: Absent

Ligule: Prominent membranous (3 mm tall), toothed margin

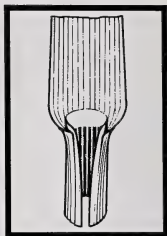
Leaf blade: First blade is tall, narrow. Vertical leaf blades are softly hairy, prominent midrib below, narrow, long and twisted

Leaf sheath: Softly hairy, round, split at top, closed at bottom

Roots: Fibrous, emerging from stem nodes

Comments: The densely hairy leaves are the distinguishing feature of this grassy weed.

FOXTAIL BARLEY



Foxtail Barley

Hordeum jubatum L.

Life cycle: Simple perennial

Auricles: May be absent or present in a rudimentary form

Ligule: Membranous, slightly toothed margin

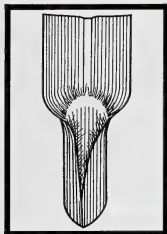
Leaf blade: First leaf blade is tall, narrow and vertical, frequently blue, greyish-green in color. Covered with short hairs – fine, prominent veins above and midrib below on leaves after the fifth leaf stage.

Leaf sheath: Short, smooth hairs; round, ribbed but not rough

Roots: Fibrous, dense, perennial

Comments: This weed is also commonly known as wild barley. It grows well in saline and moist areas.

GREEN FOXTAIL



Green Foxtail

Setaria viridis (L.) Beauv.

Life cycle: Annual

Auricle: Absent

Ligule: A fringe of hairs.

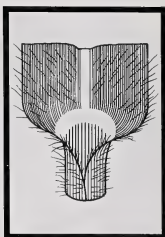
Leaf blade: Arched, hairless

Leaf sheath: Margins after second leaf – hairy, overlapping

Roots: Fibrous

Comments: This weed is commonly called millet or wild millet. It may be confused with proso millet, which has hairy leaf blades.

PROSO MILLET



Proso Millet

Panicum miliaceum L.

Life cycle: Annual

Auricle: Absent

Ligule: Fringe of hairs fused at the base

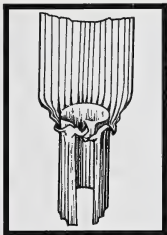
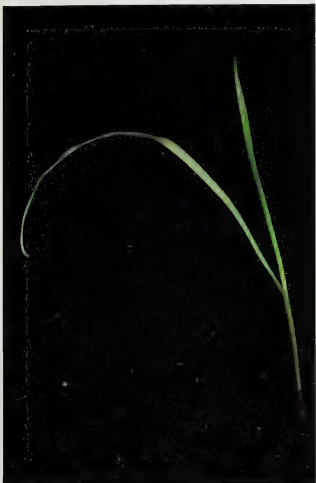
Leaf blade: Covered with dense, stiff hairs

Leaf sheath: Hairy

Roots: Fibrous, shallow

Comments: Proso millet resembles a miniature corn plant, except that it is hairy. It also may be confused with green foxtail.

PERSIAN DARNEL



Persian Darnel

Lolium persicum Boiss. & Hohen.

Life cycle: Annual

Auricle: May have clasping auricles

Ligule: Membranous, short (1 mm), smooth margins

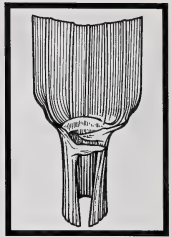
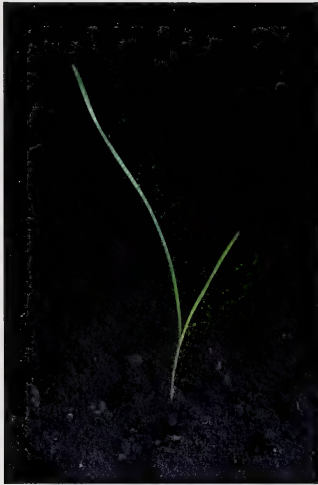
Leaf blade: Long, narrow, folded at the first leaf stage, hairless, fifth leaf stage blades have auricles, prominent veins above and midrib below.

Leaf sheath: Hairless, round, with prominent veins

Roots: Fibrous

Comments: The presence or absence of auricles is not a reliable identifying feature. The shiny leaf surface is the major distinguishing characteristic.

QUACKGRASS



Quackgrass

Elytrigia repens (L.) Neuski

Life cycle: Creeping perennial

Auricle: Claw-like

Ligule: Membranous, short (0.5-1.0 mm) and slightly toothed

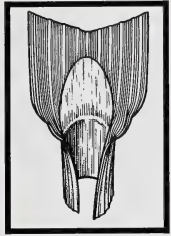
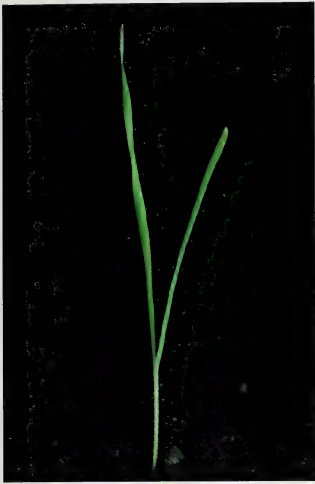
Leaf blade: Often sparsely hairy, older blades, have M-shaped constriction toward tips.

Leaf sheath: Often hairy at lower sheath on very young plants

Roots: Fibrous roots emerge from nodes of the underground creeping stems, which are branched, with pointed tips, creamy yellow, tough.

Comments: The auricles and creeping stems are the two most distinguishing features of this weed.

WILD OATS



Wild Oats

Avena fatua L.

Life cycle: Annual

Auricle: Absent

Ligule: Membranous, long (5 mm) and slightly toothed margin

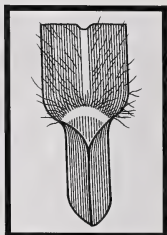
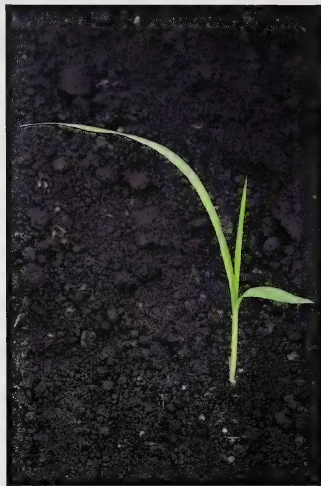
Leaf blade: Long, narrow blades with long hairs on leaf margins near ligule twist counter clockwise

Leaf sheath: First few sheaths sparsely haired, later without hairs, round

Roots: Fibrous, extensive

Comments: Seedlings may be identified by the distinctive seed which is retained on the roots.

YELLOW FOXTAIL



Yellow Foxtail

Setaria glauca (L.) Beauv.

Life cycle: Annual

Auricle: Absent

Ligule: A fringe of hairs

Leaf blade: Hairless, arched, older blades will have long hairs near the base just above the ligule, prominent midrib.

Leaf sheath: Hairless, flat by the third leaf stage, often reddish at the base.

Roots: Fibrous

Comments: The long hairs at the base of the leaf blades differentiate yellow foxtail from green foxtail before seed head emergence. Yellow foxtail is a taller plant at maturity, and the seeds are larger than green foxtail.

YELLOW NUTSEdge



Yellow Nutsedge

Cyperus esculentus L.

Life cycle: Simple perennial.
A member of the sedge family.

Ligule: Absent

Leaf blade: Immature leaves grow in three different directions from the main stem, and are waxy and shiny. Reddish-brown on lower leaves, triangular in cross section

Roots: Creeping, fleshy, with finer, fibrous roots branching from underground nutlets and underground fleshy tubers.

Comments: This weed resembles a grass but is actually a member of the sedge family. It prefers moist soils.

Alternate leaves – single leaves attached at different positions on the stem, not opposite each other.

Annual – a plant which germinates, produces seeds and dies within one year.

Auricle – earlike appendage which wraps around the stem of some grass plants at the junction of the leaf blade and the stem.

Axil – the inside of the junction of the leaf and stem. Buds form in this area.

Basal leaves – leaves attached to the base of the plant.

Biennial – a plant which germinates in the spring or summer, over winters a small plant or rosette, then in spring matures, flowers and produces seeds.

Blade – the expanded, usually flat, part of a leaf.

Bloom – a whitish, powdery covering.

Collar – the region of a grass leaf between the blade and sheath.

Cotyledons – the first leaf or pair of leaves originating from the seed (seed leaves).

- Linear – a long leaf with parallel sides, tapering at both ends.
- Lanceolate – a lance shaped leaf, much longer than broad, with the widest part at the base.
- Oval – a leaf with the widest part at the center.
- Obovate – egg-shaped in outline, with the widest part at the top of the leaf.
- Ovate – egg-shaped with the widest part at the base of the leaf.
- Spatulate – a leaf that is spade or heart shaped.
- Needle-like – very narrow leaves.
- Kidney-shaped – broad leaf deeply indented at the top of the leaf.

Elliptic – lens shaped.

Glossy – having a shiny surface.

Internode – the region of the stem between the nodes.

Keel – prominent ridge on the back of a leaf sheath or blade usually along the midrib.

Leaf –

- Simple – a leaf with no divisions.
- Compound – a leaf made up of several leaflets.

Ligule – flap of membranous tissue or fringe of hairs on the inside of a grass leaf where the blade joins the stem.

Mid-vein – (midrib) – the central vein or rib of a leaf.

Node – joint in the stem where leaves or branches are attached.

Ocrea – a papery or membranous sheath at the base of the leaf, characteristic of some plant families.

Opposite leaves – two leaves originating from the same point on the stem and opposite each other.

Petiole – the stem of a leaf.

Rhizome – an underground stem of a perennial plant which can bud and produce shoots.

Rosette – a flat, circular cluster of leaves formed at the ground surface. Usually an overwintering stage.

Sessile – leaf or cotyledon attached directly with no stalk.

Sheath – the lower part of a leaf that surrounds the stem or shoot.

Spore – an asexual propagule which is used to spread non-flowering plants.

True leaves – leaves that develop after the cotyledons.

Veination –

- Palmate – veins arranged like fingers from the central base of the leaf.
- Pinnate – veins arranged like a feather.
- Parallel – vein pattern in grasses.

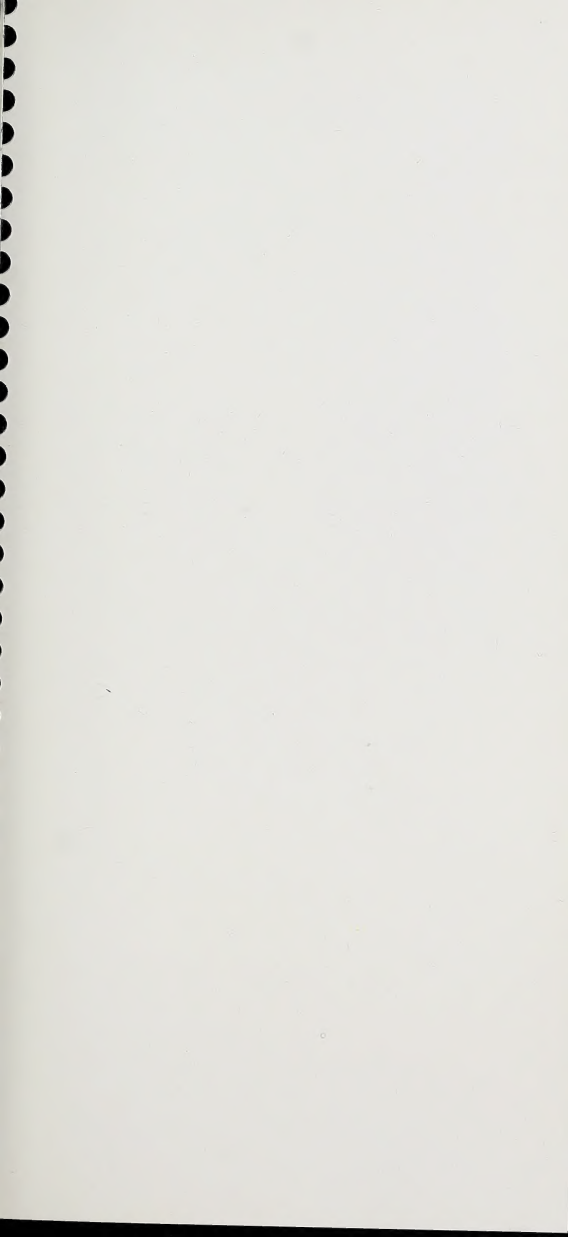
Whorl – three or more leaves attached at the stem at the same point (whorled).

Winter annual – a plant which germinates in the fall, overwinters as a small plant or rosette, then matures in spring, flowers and produces seed.

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